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THE NEXT ENERGY CRISIS:
U.S. NATIONAL SECURITY VULNERABILITY IN THE 1990s

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INTRODUCTION

The Arab oil embargo of 1973 and the oil price "shocks" of 1978-79 created a national concern for energy security and prompted both the Nixon and Carter Administrations to launch a major drive for U.S. energy independence in the 1990s. Worldwide economic recession in the early 1980s resulted in lower demand for oil and oil prices plunged by 50 percent from 1979 levels. By the end of the 1980s, low prices had resulted in higher consumption, less conservation, lower domestic oil production, less investment in alternate sources, and even greater dependence on foreign imports. By January, 1990, U.S. oil imports reached 54 percent of consumption which is nearly 20 percent higher than the period of the 1973 embargo. Although oil prices today are relatively low and supplies are plentiful, the fact remains the United States is now over 50 percent dependent on foreign sources for a resource that is vital to the U.S. economy and national security. The availability of cheap foreign oil has undermined the goal of energy independence and seriously eroded the margin of energy security.

Despite growing U.S. dependence on foreign oil, there is no consensus in the nation that energy security is a critical problem. Many analysts argue the situation has changed radically from the 1970s because U.S. imports are more diversified, there are greater

supplies available outside of OPEC and the Middle East, and because today there is considerable excess supply capacity. These analysts believe this situation will continue into the foreseeable future with no supply problems.¹ Other analysts predict that by the mid-1990s, conditions will be ripe for another oil crisis because world supply and demand will be in near equilibrium and a crisis in the Persian Gulf could seriously upset the supply side and send prices soaring again.²

The conflicting views derive not only from different assumptions about the oil market, but also from different perceptions of the problem. Optimistic views tend to focus primarily on the supply aspects while pessimistic views focus more on the price aspects. Both supply and price are important. Energy security is not just adequate and uninterrupted supplies but also supplies at reasonable prices. A major rise in prices would have serious impact upon a U.S. economy that is already heavily burdened by a major trade deficit and high national debt. Energy security must focus on supply shocks that can cause sudden and sharp price increases and impose severe economic costs.

Regardless of whether one accepts the optimistic or the pessimistic view, the availability of oil is still a vital U.S. national security interest. Oil is the lifeblood of a U.S. economy

that depends upon cheap transportation, electricity, and numerous petroleum based chemical and synthetic products. Furthermore, oil is an essential resource requirement for maintaining U.S. military operational readiness. Given the long lead times required to develop and implement alternate fuel technologies, the U.S. must be prepared to meet all possible contingencies that could affect the supply of oil at reasonable prices. A critical analysis of the issue requires an examination of the oil market, the potential threats to supply, the foreign policy instruments required to deal with any threat, and the international and domestic actions needed to provide an adequate margin of energy security.

THE OIL MARKET: CRISIS IN THE 1970s

In the decade of the 1970s, there were three major shocks to the international oil market. The first was the ability of the exporter nations to form a viable cartel which could control production and prices. The OPEC cartel effectively replaced the major international oil companies as the primary force in controlling the supply side of the market. By manipulating production levels as well as taxes and royalties, OPEC was able to raise oil prices from under \$2 per barrel to over \$12 in the span of about five years. The second major shock was the attempt by the Arab members of OPEC to use oil as a political weapon with the 1973

embargo in retaliation for Western support of Israel during the October war with Egypt. The third major shock came in 1979-81 following the Iranian Revolution when prices soared from \$13 per barrel to nearly \$40 per barrel as a result of a decline in Iran's oil production. The Iranian experience demonstrated that in a relatively tight market a drop of about 10 percent in world production can create a threefold increase in prices. The cost to the U.S. was an additional \$35 billion per year for oil imports coupled with inflation, economic recession, and higher unemployment.

Although both the embargo and the Iranian situation diminished production, the major impact was on prices not supplies. Long gas lines in the United States following the embargo were more the result of price controls and bureaucratic mismanagement of distribution than the result of inadequate supplies.³ The impact of the Iranian Revolution was more psychological as fear of reduced supplies led to hoarding and stockpiling which caused prices to skyrocket. The net result of both crises was a major increase in prices but not a significant loss of supplies. The price increases led to severe inflation in most importing countries and resulted in two major worldwide economic recessions during 1974-75 and again from 1980-82.

The U.S. response to the oil crises had both a national and an international component. Following the 1973 embargo, President Nixon launched Project Independence with a stated goal of eliminating oil imports in seven years. The plan placed heavy emphasis on nuclear power and proposed numerous incentives to spur more domestic production. However, the plan was probably too ambitious and ran into serious Congressional opposition. In 1977, President Carter proposed a more comprehensive plan with the major emphasis on incentives to conserve energy use and to stimulate investment in new technologies to develop synthetic and alternate energy sources. The Carter program also established a Strategic Petroleum Reserve (SPR) of 500 million barrels which would enable the U.S. to survive a cutoff of imports for up to 90 days. Also during this period, a cabinet level Department of Energy was created to formulate, coordinate and implement a national energy policy.

Internationally the U.S. response had two major thrusts. The first was to seek a sharing arrangement among the industrial, oil importing nations whereby available oil would be equally shared during a crisis to minimize disruption in any single country. The International Energy Agency (IEA) was created in 1974 to formulate emergency plans for such sharing and to act as a general clearinghouse for information on the international oil market. The

second approach was to create a strategic relationship with Iran and Saudi Arabia to promote stability in the Persian Gulf and reduce the risk of any supply disruption. The instruments of statecraft used to forge these relationships were massive sales of arms and technology and attractive opportunities for both nations to invest their surplus oil revenues in U.S. assets.

U.S. energy security policy in the 1970s was based on two assumptions. First, the United States could reduce dependence through alternate energy sources. Second, the United States could minimize the risk of supply disruptions by creating firm relationships with Iran and Saudi Arabia. The first assumption was eroded by lower oil prices in the 1980s and the second assumption was shattered by the Iranian Revolution.⁴

OIL MARKET: SURPLUS IN THE 1980s

In the 1980s there was a dramatic change in oil supply and demand. High prices stimulated new exploration and drilling and made it possible to use more expensive techniques to extract oil from such places as Alaska and the North Sea. Patterns of usage changed dramatically as a result of numerous conservation efforts and reduced economic activity during the recession of 1980-82. By 1983 the volume of oil trade was only 55 percent of the 1979 level.

The changes in the 1980s were highlighted by the following developments:⁵

-- By 1988 world production capacity was 10 million barrels per day higher than demand.

-- OPEC production as a percentage of world supply declined from 64 percent in 1979 to 42 percent in 1985.

-- In the six year period from 1978 to 1984, industrial nation consumption dropped from 40 million barrels per day to 34 million barrels per day.

-- In 1988 the United States used 32 percent less oil per unit of GNP than in 1973.

-- By 1985 the United States had reduced dependence on Middle East oil from 33 percent in 1977 to only 15 percent and U.S. dependence overall on imports had declined from 45 percent in 1979 to only 27 percent.

-- Persian Gulf oil production fell from 21 million barrels per day in 1979 to only eight million barrels per day in 1985 and the Persian Gulf share of world oil production had dropped from 56 percent to 33 percent.

The U.S. approach to energy security in the 1980s was to move away from government control and regulation and to allow market forces to handle the situation. President Reagan initiated the change in 1981 by removing price controls and seeking to deregulate the oil industry. The Reagan Administration continued the program of creating emergency stocks in the Strategic Petroleum Reserve which by 1988 contained 550 million barrels or 92 days of imports. Other programs initiated by President Carter to develop alternate technologies and synthetic fuels were largely ignored or discontinued. The U.S. strategy in the Persian Gulf continued to emphasize a close relationship with Saudi Arabia. However, in view of the Iranian experience, U.S. strategy now recognized the possible need for unilateral action in the event of a crisis. As a result, the U.S. Rapid Deployment Force was reorganized under a stronger Central Command and the United States actively sought to negotiate agreements with area countries for access to facilities that could be used by U.S. forces in the event of deployment.⁸

As production in non-OPEC countries increased and demand decreased, oil prices fell significantly and by 1988 prices were 50 percent lower than the peak year of 1981. This situation created a reverse "shock" for the OPEC nations as oil revenues declined sharply and forced major domestic spending readjustments.

To compensate for lower prices, some OPEC nations sought to increase production and exports which in turn contributed to a larger surplus and even lower prices. The beneficial effects of a large surplus capacity in the 1980s was clearly evident in the lack of any consumer panic or price increases during the prolonged Iran-Iraq War and the associated attacks on Persian Gulf shipping. Although overall U.S. oil consumption decreased in the 1980s and the U.S. benefited from lower prices in a buyer's market, by the end of the decade, U.S. dependence on imports increased significantly as shown in Table 1.

OIL MARKET: OUTLOOK FOR THE 1990s

Although the current margin of energy security appears considerable, the margin depends on the continued surplus of production capacity over consumption. It is worth noting that 75 percent of the current 10 million barrel per day surplus capacity resides in the Persian Gulf area. Outside of the Persian Gulf the margin is only 2.5 million barrels per day. Any increase in demand or reduction in supply reduces the current security.

Predictions of economic activity are always subject to wide degrees of error. However, current conditions indicate a definite increase in the demand for oil in the 1990s. The demand arises from

TABLE 1: U.S. OIL CONSUMPTION 1973-1989

YEAR	DOMESTIC PRODUCTION (MBD)	IMPORTS (MBD)	COST OF IMPORTS (\$ BILLIONS)
1973	11.0	6.2	8.4
1974	10.5	6.1	26.6
1975	10.2	6.0	27.0
1976	9.7	7.3	34.6
1977	9.9	8.8	45.0
1978	10.3	8.4	42.6
1979	10.1	8.5	61.0
1980	10.2	6.9	79.4
1981	10.2	6.0	78.6
1982	10.2	5.1	62.0
1983	10.3	5.1	55.3
1984	10.5	5.4	58.0
1985	10.6	5.1	51.3
1986	10.2	6.2	34.4
1987	9.9	6.7	42.9
1988	9.8	7.2	39.3
1989	9.2	7.8	49.6

Source: Energy Information Administration, Department of Energy.

Note: Production and import figures expressed in millions of barrels per day (mbd).

economic growth in the established industrial nations as well as growth in new industrial nations such as South Korea and Taiwan. Industrialization efforts in large developing nations like India, Brazil and the PRC will lead to higher oil consumption. Perhaps, the most significant new factor in this decade will be the economic growth potential of the new democracies in Eastern Europe. Economic reconstruction in these countries could rapidly increase the demand for oil. It has been estimated that the demand for oil by 1995 could increase by as little as four million barrels per day or as much as seven million barrels per day depending on various economic growth rate scenarios.⁷ Assuming the minimum increase of four million barrels, surplus capacity by 1995 is reduced to six million barrels per day all of which resides in the Persian Gulf.

In January, 1990, U.S. dependency on foreign oil reached a new high as oil imports equaled 54 percent of consumption. Prospects for reduced U.S. dependence in this decade are not good as evidenced by the following indicators:

-- Since 1987 U.S. domestic oil production has declined by 1.5 million barrels per day. Another one million barrels per day will probably be lost by 1995. The U.S. is drawing down estimated recoverable reserves of 28 billion barrels at the rate of 3.2 billion barrels per year.⁸

-- As a result of low prices, new investment and exploration in the U.S. have virtually ceased. The number of exploratory wells in 1989 dropped to 542 compared to 2,334 in 1984.

-- Conservation efforts have declined in the U.S. Tax credits for conservation have expired. Raising the highway speed limit to 65 mph has increased gasoline consumption by at least five percent.

-- Low oil prices have reduced incentives to invest in alternate energy technologies. The U.S. Government funded Synthetic Fuels Corporation has been disbanded. The Carter goal of producing two million barrels of synthetic fuels per day has eroded. The solar energy industry has lost all state and federal tax credits.

-- The U.S. is becoming more dependent on imported products. Domestic refining capacity is operating at peak levels. Any increase in gasoline consumption will have to be met by imported gasoline.

-- The cost of oil imports imposes a major burden on the already large U.S. trade deficit. In 1989, U.S. oil imports cost \$49 billion which amounts to 45 percent of the total 1989 trade deficit.

-- The Department of Energy estimates that by 1995 imports will rise to 9.1 million barrels per day at a cost of \$68 billion per year.⁹

On the supply side, the trend is towards greater concentration of exports and surplus capacity among fewer nations, primarily those located in the Persian Gulf. The Persian Gulf nations already contain over 70 percent of oil reserves in the Free World and 27 percent of these reserves are located in just one country, Saudi Arabia. While many producers such as the United States are producing more each year than is being discovered, the exact reverse is true for the Persian Gulf. As the surplus capacity margin declines, exporters will once again be in a position to exert greater control over supply and prices. Unlike the situation in the 1970s, the exporting nations now have much greater control over downstream operations in refining, transportation, and marketing which were previously controlled by the major oil companies.

The irony of growing U.S. dependence on foreign oil is that the U.S. has no real shortage of energy resources in the ground. Several estimates have been made which indicate there may be as much as 300 billion barrels of crude oil in the ground and as much as four trillion barrels in shale oil resources.¹⁰ The problem is

that extraction and production of these resources is expensive and not profitable at today's product prices. Also, the lead time required to develop these resources is 10 to 15 years. The bottom line for the U.S. in the 1990s is that there is no significant short-term relief from dependence on foreign oil.

Dependency on imported oil is not just a U.S. problem. It is a problem shared by virtually all of the industrial nations as well as most developing and less developed nations. In fact, compared to countries like Japan and West Germany, the U.S. enjoys a high margin of energy security. Direct dependence on Persian Gulf oil is also much more critical for most other countries than it is for the U.S. Japan imports 95 percent of its oil from the Persian Gulf and West Germany 80 percent, while only about 20 percent of U.S. imports are from the Persian Gulf. Nevertheless, the Persian Gulf is still the key to U.S. energy security for at least two reasons. First, the Persian Gulf holds 70 percent of Free World oil reserves and 75 percent of the current surplus production capacity. Second, any disruption in Persian Gulf supplies will send countries like Japan and West Germany scrambling for oil from other sources which provide oil to the U.S. It is important, therefore, to examine the potential threats to Persian Gulf oil supplies and to develop a national security strategy for dealing with such threats.

POTENTIAL THREATS TO PERSIAN GULF OIL

The threats to the supply of Persian Gulf oil can be grouped into five categories: Soviet aggression, regional conflicts, internal instability, exporter actions such as an embargo, and terrorism. In view of events during the past year, the Soviet threat is the least likely concern. The improbable scenario of a Soviet invasion of Iran, which has long preoccupied U.S. strategic planning, seems quite remote given the Soviet experience in Afghanistan and current Soviet internal problems.

The threat posed by local or regional conflicts such as the Iran-Iraq War is a constant source of concern. Although the Iran-Iraq War had little impact on either prices or supply, the conflict took place in an oil market that had considerable excess production capacity. As this excess capacity margin erodes in the 1990s, the danger of an "oil shock" from future conflicts increases, especially if the conflict involves Saudi Arabia. In addition to continuing enmity between Iran and Iraq, there are several other potential sources of regional conflict. These sources can be divided into religious (Sunni versus Shi'ite and the growth of Islamic Fundamentalism), ethnic (Kurds in Iraq and Iran), territorial (border disputes between Iraq and Iran and also Iraq and Kuwait), and ideological (Marxism in Yemen and Ba'athism in

Iraq). The continuous threat of another Arab-Israeli conflict poses further danger especially if the conflict were to widen and involve major oil producers such as Saudi Arabia and Kuwait. The real danger to oil supplies from such local wars is not the threat to shipping or blocking the Straits of Hormuz (which is exceedingly difficult to accomplish) but more the damage to basic production and distribution facilities. In the Iran-Iraq War, despite all the publicity with reflagging and U.S. naval escort operations, the loss of oil supplies from attacks on tankers was microscopic compared to the losses caused by wartime disruptions and dislocations in the oil industries of both countries.

The Iranian Revolution clearly demonstrated the type of impact that a violent internal upheaval can have on oil production. Prior to the revolution Iran was producing 5.5 million barrels per day. This dropped sharply to under two million barrels per day following the revolution. Management of the Iranian oil industry was severely disrupted by the crisis and many fields fell into disuse or disrepair due to the withdrawal of Western technical assistance and the lack of spare parts.

Internal threats to the Saudi Government are the major source of concern for U.S. interests in the Persian Gulf. On the surface, the Saudi regime appears stable with no direct threats to the

ruling monarchy. Beneath the surface , however, there are a number of potential threats. Although 93 percent of all Saudi Moslems are Sunni, many of these are strict adherents of the puritanical Wahhabi doctrine which favors a return to Islamic fundamentals. This element poses a problem for a regime that has embarked on rapid modernization and has embraced many Western amenities and practices that conflict with basic Islamic values. A further religious problem exists with the small minority of Saudis who belong to the Shi'ite sect. Most of the Shi'ites live near the oil-rich eastern province and many of the oilfield workers are Shi'ites. Other sources of internal instability are conflicts between different factions of the ruling family, a growing and powerful military establishment that is disillusioned by corruption and hypocrisy within the ruling elite, and finally, the presence of a very large foreign workforce, estimated at two million, whose presence is viewed as a threat to traditional Islamic society.¹¹

A fourth type of threat is the possibility of using oil as a political weapon similar to the circumstances of the 1973 embargo. For this to be a viable threat, the world oil market must be in a condition of equilibrium with little or no surplus capacity existing outside of the nation or nations imposing the embargo. At present, this situation does not exist but as noted earlier, the current trend is higher demand and lower production outside the

Persian Gulf area. The major stimulus for the application of an embargo is likely to revolve around Israel either in the form of an Israeli-Arab war or the failure to resolve the Palestinian issue. Despite the fact that an embargo is difficult to enforce directly against a particular state and that it may be counterproductive to the economic interests of the exporter, the use of such a blunt weapon for emotional or psychological reasons cannot be discounted.¹²

A final and seldom discussed threat is the one posed by terrorist action. The proliferation of terrorist groups in the Middle East and the history of spectacular terrorist incidents demands active consideration of this type of threat. In a tight market situation, a successful terrorist attack against a key pipeline, oilfield, distribution center or even a refinery could cause panic and disruption. Although the effect on oil supplies may be minimal and short-lived, the psychological impact could be quite significant.

U.S. MILITARY STRATEGY AND OPTIONS

Following the Iranian Revolution and the Soviet invasion of Afghanistan, Presidents Carter and Reagan firmly committed U.S. military forces to an active role in the Persian Gulf. The 1980

Carter Doctrine committed the United States to the military defense of the Persian Gulf against external threats. The Reagan Corollary added internal threats and stated that Saudi Arabia would not be permitted to become another Iran. These two statements have formed the basis of U.S. policy in the Persian Gulf. It is a policy which seeks to employ military strategies of defense and deterrence. The U.S. Central Command (CENTCOM) was created under President Reagan and designated as the principle instrument for the protection of U.S. interests in the Persian Gulf. CENTCOM replaced the Rapid Deployment Force set up under the Carter Administration.¹³

The military objectives given to CENTCOM are to deter Soviet expansion, to ensure Western access to Arabian Peninsula oil resources, and to assist friendly states to provide for their own security against subversion and insurgency. The strategy for achieving these objectives is focused on demonstrating U.S. force projection capability, formulating military contingency plans, conducting combined exercises, administering security assistance programs, and training local military forces. The first response to an external threat is to provide noncombatant force support (eg AWACS, reconnaissance, refueling). Deployment of U.S. combatant forces is viewed as the last option. The forces available to CENTCOM include five Army divisions, one, and one-third Marine divisions, seven tactical fighter wings, two strategic bomber

squadrons, three carrier battle groups, one surface action group and five maritime patrol squadrons.¹⁴

CENTCOM's two main requirements are sufficient force projection capability and regional access. The U.S. has no bases in the Gulf but by agreement with Oman and Saudi Arabia, CENTCOM is permitted access to air and naval bases in the event of a crisis.

As defined by Presidents Carter and Reagan, CENTCOM is expected to deal with three ranges of threat: Soviet invasion, inter-state war, and internal regime crises. The impediments to CENTCOM military operations in the Gulf are considerable. The nearest base under U.S. control is Diego Garcia which is 2,000 miles from the region. All other points of entry and operations depend on local permission. Strategic lift is a major problem. The air line of communication from the U.S. East Coast to the Persian Gulf is 7,000 miles and the sea line of communication via the Suez Canal is 8,000 miles or 12,000 miles via the Cape of Good Hope. The area offers a very poor environment for ground operations due to harsh terrain, limited facilities and limited resources. Despite agreements with Oman and Saudi Arabia, access to facilities is at best uncertain even in a crisis. The Gulf states are extremely sensitive to any U.S. military presence and even during the tanker reflagging operations, the Gulf nations preferred a U.S. presence that was "over the horizon."¹⁵

U.S. military planning in the Gulf has tended to focus primarily on the Soviet threat. CENTCOM forces have been structured to meet a Soviet invasion of Iran. The Soviet withdrawal from Afghanistan coupled with the current Soviet focus on internal reform make a Soviet threat the least likely scenario. The ability of U.S. military forces to cope with the most likely threats of regional conflict, internal instability, terrorism and manipulations of oil exports and prices is highly questionable. CENTCOM forces are not designed, structured or trained to cope with these types of threats. Moreover, unilateral, U.S. military intervention in such situations is likely to be extremely counterproductive. An attempt to seize and secure Saudi oilfields in response to an internal coup or revolution would result in widespread opposition from other Arab states as well as Western allies. Even if the oilfields could be seized without pre-emptive sabotage by local groups, the problems of continued occupation would be massive. Furthermore, such action would destabilize the oil market by inducing panic and speculative buying that would lead to major prices increases.

Military force is not a suitable instrument to handle the most likely type of instability which is political in nature not military and whose origins are indigenous not external. In the event of regional conflict such as the Iran-Iraq War, it is

difficult to foresee a role for U.S. military forces other than the protection of international rights of passage. It is highly unlikely that the U.S. would deploy large ground forces to deal with regional conflicts. CENTCOM by its own admission has only limited capabilities for forcible entry and their access depends upon local invitation.¹⁶ The problem with current CENTCOM strategy in the Persian Gulf is that the strategy is not linked to the political realities in the Gulf area. It is also highly questionable whether the U.S. public would support any massive U.S. military involvement in the area. At present, there is no public consensus on the circumstances under which U.S. forces should be used or the degree to which U.S. forces could eliminate or reduce any threat to oil production in the Gulf. Although, reaction to the use of U.S. naval power to protect tanker shipping during the Iran-Iraq War was generally favorable, this action occurred in international waters and involved minimal U.S. casualties. Involvement in a ground war would be perceived quite differently.

Given the nature of the threats in the Gulf, the focus of U.S. military strategy should be to assist local governments to develop the capability to counter the most likely irregular threats such as terrorism, insurgency, coups and acts of violence stemming from political dissent and minority group grievances. The most appropriate force structure for dealing with such situations is

small, quick reaction, specialized units with the emphasis on mobility and special operations. Training local forces, providing security assistance and promoting regional joint security exercises should be the key elements of U.S. military involvement. The existing CENTCOM force structure is excessive and out of proportion to both the threat and the type of U.S. military role needed in the region. A minimum deterrent comprised primarily of U.S. sea and air power normally based in the area or operating in the Indian Ocean would provide a more than adequate capability to handle most contingencies.

Six of the Persian Gulf states (Saudi Arabia, Kuwait, Bahrain, Oman, Qatar and the United Arab Emirates) have already formed a regional alliance in the form of the Gulf Cooperation Council (GCC). Although the GCC was not originally intended to be a security or defense alliance, it has evolved into an ad hoc collective security pact. In 1982 the GCC added a mutual defense doctrine which stated that an attack on one member is viewed as an attack on all members. Since then, the GCC has developed various forms of military cooperation to include collective air defense, joint exercises, coordinated arms procurement policy, development of an indigenous military industry and even the formation of a Rapid Deployment Force.¹⁷ Although the GCC members have different perceptions of the various threats and tend to work more on an

ad hoc basis, the GCC represents a security mechanism that is already in place and which the United States can use to advance its own interests. Given the sensitivity of U.S. unilateral presence and operations in the area, it would make sense for U.S. policy to focus on assistance to the GCC.

The overall U.S. strategy in the Persian Gulf should focus more on political and economic instruments than military power. The emphasis should be on building regional cooperation and security arrangements and promoting greater economic interdependence. The issue of energy security is basically an economic problem. The importing nations must seek to reduce the risks of dependence and to minimize the impact of supply disruptions. The use of military force to solve a supply or access problem will simply worsen the situation.

INTERNATIONAL POLICY OPTION

There are numerous actions which the U.S. can take internationally to improve the rapidly deteriorating margin of energy security. Some of the major steps include:

-- Strengthen the commitment to the International Energy Agency. The oil problem is global in character and the IEA provides

the only framework for policy coordination and crisis response which can prevent a nationalistic competition for oil in the event of a supply crisis. The role of the IEA could be critical in the next crisis because, unlike 1973, the international oil companies are no longer in a position to control the equitable distribution of oil supplies. Also, the IEA can provide a valuable role as a forum for sharing research and development efforts on new technologies.

-- Seek the fullest possible integration of the economic and financial interests of both exporters and importers. This can take the form of assistance with the internal economic development needs of the exporters as well as providing exporters with safe and profitable long-term investments whose value is not eroded by inflation. Greater economic interdependence helps to assure that the continued flow of oil at reasonable prices is in the best interests of all parties.

-- Intensify efforts to resolve the Palestinian issue and to reduce the risk of Arab-Israeli conflict. The Palestine problem is the one single issue that could unite all of the Moslem oil producers against the United States. Failure to find a solution increases the risk of supply and price disruptions especially as the market nears equilibrium in the mid to late 1990s.

-- Work with Europe and Japan to develop coordinated joint action plans for securing access to Persian Gulf oil. Discourage bilateral preferential trade agreements with oil exporters in order to reduce nationalistic competition amongst importers for oil access.

DOMESTIC POLICY OPTIONS

Ultimately, the only sure way to improve energy security is to implement policies and programs that encourage conservation and the development of domestic energy resources as well as promote research and development of alternate energy technologies. The key to all domestic actions lies in the pricing of petroleum products. The current low prices discourage conservation and make it unprofitable to invest in the exploitation of new sources. Given that prices will increase in the future anyway, either as a result of supply disruptions or continued increases in demand, it makes sense now to introduce a system of gradual price increases through higher taxes which will stimulate private sector investment in the energy resources of the future. The U.S. does not really have a shortage of energy. What it lacks is energy that can be produced at today's prices with existing technology.

In the short-term, there are no real solutions to dependence on foreign oil. While the long-term strategy should be to encourage the development of new energy sources, the short-term strategy must be to reduce the risks of dependence. Some of the key actions in a risk reduction strategy are:

- Expand the quantity of oil held in the Strategic Petroleum Reserve to cover 120 days of imports. This would provide a cushion against any severe supply disruptions.

- Use government regulations and tax and investment incentives to increase conservation and fuel efficiency in the transportation and electricity industries.

- Promote geographic diversification of the sources of supply to prevent excessive dependence on any single exporting nation or region.

- Increase the use of natural gas. Gas is an easy substitute for oil in many areas and is available in large quantities from domestic sources as well as secure supply sources such as Canada.¹⁸

-- Provide government funding or incentives for research and development into new energy technologies. Part of this effort could be funded by Defense Department programs which would seek to reduce the dependence of military transportation systems on oil as the primary fuel.

CONCLUSION

It took nearly a decade to adjust to the oil crises of the 1970s. At the beginning of the 1990s, oil appears to be available in ample quantities at reasonable prices and an attitude of complacency prevails with regard to energy security. Lurking just beneath the surface of today's comfortable position are numerous indicators which point to the danger of another oil crisis. Despite the movement of the United States to a post industrial economy, oil still occupies a key position as it forms the basis of elaborate transportation and electricity supply systems upon which U.S. society is based. Dependence upon oil carries special risks because of its geographic distribution and the constant threat of crisis in its supply. Access to an uninterrupted supply of oil at reasonable prices constitutes a vital interest to U.S. economic well being and the continuation of the United States as a major power.

A strategy for achieving energy security must be multi-dimensional. The objective is not just to ensure access to adequate foreign oil supplies at reasonable prices but also to actively develop the means that will minimize foreign dependence. The short-term strategy should focus on the diplomatic, political, economic, and military efforts needed to maintain access to foreign oil and to reduce vulnerability to supply disruptions. The long-term strategy should focus on the technology required to create a balanced and diversified mix of energy resources. Just as the absence of war does not absolve the government from its responsibility to provide an adequate national defense, the absence of an oil crisis does not excuse the government from its duty to ensure energy supplies at affordable costs in the future.

NOTES

¹For the optimistic view, see "The Persian Gulf in U.S. Strategy" by Robert H. Johnson, International Security, Summer 1989, Vol. 14, No. 1.

²For the pessimistic view, see "Energy Security in the 1990s" by Daniel Yergin, Foreign Affairs, Fall 1988, Vol. 67, No. 1.

³See "NOPEC - The Future of Oil" by S. Fred Singer, The National Interest, Spring 1987, No. 7.

⁴This discussion was based on various speeches made at the U.S. Global Strategy Council Conference on the Future of Energy and National Security, 25 June 1987, Washington D.C.

⁵Data on oil trade, production and consumption was derived from the International Petroleum Statistics Report published by the Energy Information Administration, U.S. Department of Energy.

⁶For a more detailed discussion on the evolution of the RDF, see The Persian Gulf and the West: The Dilemmas of Security by Charles A. Kupchan, Allen and Unwin, Boston, 1987.

⁷See "Energy Security in the 1990s" by Daniel Yergin, Foreign Affairs, Fall 1988, Vol. 67, No. 1.

⁸Source, U.S. Department of Energy.

⁹Wall Street Journal, 5 March 1990.

¹⁰Data from Energy Security to Year 2000, Belgrave, Ebinger and Hideaki eds., Gower Publishing, London, 1987

¹¹Discussion of internal threats based on "Gulf Co-operation Council: The Security Policies" by Laura Guazzone, Survival, March/April 1988, International Institute for Strategic Studies.

¹²Although producer efforts during the 1973 embargo to control the ultimate destination of oil were largely ineffective, the Persian Gulf producers now have considerably more control over transportation and marketing systems.

¹³See "The Evolution of U.S. Strategy Toward the Indian Ocean and Persian Gulf Regions" by Gary Sick in Alvin Z. Rubenstein, ed., The Great Game: Rivalry in the Persian Gulf and South Asia, Praeger, New York, 1983.

¹⁴CENTCOM information derived from "The U.S. Central Command: Bone, Sinew and Muscle for Regional Defense" by General George B. Crist, USMC, Defense/87, November-December, 1987.

¹⁵See U.S. Energy Policy and U.S. Foreign Policy in the 1980s, Report of the Atlantic Council's Energy Policy Committee, University Press of America, 1988.

¹⁶See The Persian Gulf and the West: Dilemmas of Security by Charles A. Kupchan, Allen and Unwin, Boston, 1987. The problems of using U.S. military force in the Persian Gulf are discussed at length in U.S. Energy Policy and U.S. Foreign Policy in the 1980s, Report of the Atlantic Council's Energy Policy Committee, University Press of America, 1987.

¹⁷See "Gulf Co-operation Council: The Security Policies" by Laura Guazzone, Survival, March/April, 1988, International Institute for Strategic Studies.

¹⁸For a discussion of the important contribution that natural gas can make, see "Gassing Up" by Rochelle L. Stanfield, National Journal, June 11, 1988.